Arlington Public School Science Curriculum Maps
Course/Class: Technology & Engineering
Grade(s): 7th

Vision of the Student as Learner skills:

Arlington Public School students will:

- work independently and collaboratively
- observe, analyze and synthesize information from a variety of sources to enhance existing understandings and construct new knowledge
- demonstrate perseverance by using repeated reasoning and inquiry
- participate in rigorous, focused discourse
- develop and defend arguments based on evidence and respectfully consider different perspectives
- create and critique original work

Vision of the Student as Global Citizen skills:

Arlington Public School students will:

- speak with and listen to others in a manner that is respectful of multiple perspectives
- cultivate and maintain healthy and rewarding relationships with diverse individuals and groups
- develop self-awareness and self-understanding
- think critically and reflect upon choices and their impact on others
- participate as a consumer of and contributor to the cultural and civic life of local and global communities

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UNIT: Structures

LESSON(S): Structures Lecture (includes forces, loads, parts of a structure), Floor Plan Project, Scale Drawings, Tiny Houses, Forces and Loads Drawing , 3D printed houses

Essential Questions:

- How do structures support their own weight? What happens when forces/structures are not considered?
- What is the purpose of each structural component?

Frameworks Standards:

7.MS-ETS3-4(MA). Show how the components of a structural system work together to serve a structural function. Provide examples of physical structures and relate their design to their intended use

Learner Outcomes (Knowledge):

Students will:

- Understand the forces compression, tension, torsion, and shear.
- Identify the difference between a dead and live load.
- Create a to-scale floor plan of a building

Instructional Strategies:

- Direct instruction
- Cooperative learning

- Hands on learning
- Learning feedback that is detailed and specific
- High expectations for students
- Provide opportunities for student practice
- Note Taking
- Group discussions

Assessment Practices: Multiple choice questions, Multiple modes of demonstrated learning, Note-taking, Short low-stakes quiz to see what students know without their notes, Student presentation

Resources:

- Massachusetts Curriculum Frameworks 2016 - Science and Technology/Engineering
- JogNog
- Hands-on activities